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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,545	09/23/2003	Takeshi Nakamura	14225-025001 / F1030482US	2108
26211	7590	05/17/2006	EXAMINER	
FISH & RICHARDSON P.C. P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			CARPIO, IVAN HERNAN	
			ART UNIT	PAPER NUMBER
			2841	

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/668,545

Applicant(s)

NAKAMURA ET AL.

Examiner

Ivan H. Carpio

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 2/21/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-13 is/are pending in the application.
- 4a) Of the above claim(s) 9-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-8 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed 2/21/06 have been fully considered but they are not persuasive. Applicant's argument is that Huang does not disclose a through-hole, specifically that element 71 of Fig. 3 is not a through-hole because the encapsulate is formed after the element 71, examiner respectfully disagrees. A through-hole need not be formed after the encapsulate is formed, a through-hole is simply a passage through different layers of a material; therefore element 71 is a through-hole through resin.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5,7 and 8 are rejected under 35 U.S.C. 102(b) as being taught by Huang (US Patent 6359341).

With respect to claim 1 Huang teaches, a circuit device (Fig. 3, element 3') comprising: a conductive pattern (Fig. 3, element 32 Note: this includes the entire conductive pattern) on which a circuit element (Fig. 3, the chip mounted in the center) is mounted; an insulating resin (Fig. 3, element 35) with which the circuit element and the conductive pattern are covered; a shielding layer (Fig. 3, element 7 and (column 6,

lines 63-67) provided on the main surface of the insulating resin, a through hole penetrating the insulating resin in a thickness direction, and a connecting means (Fig. 3, elements 71) formed inside the through hole and electrically connected to the conductive pattern and the shielding layer.

With respect to claim 2 and with all the limitations of claim 1, Huang teaches the insulating resin has a through-hole (Fig. 3, the vias where elements 71 is) so as to partially expose a surface of the conductive pattern (Fig. 3, Note if shielding element 7 is removed the surface of the conductive pattern is exposed), and the connecting means is formed at a bottom face of and at a side face (fig. 3, element 71) of the through-hole.

With respect to claim 3 and with all the limitations of claim 1, Huang teaches the conductive pattern electrically connected to the shielding layer is a conductive pattern serving as a ground potential (column 6, lines 50-56).

With respect to claim 4 and with all the limitations of claim 1, Huang teaches shielding layer is made from a metal (column 6, line 52-53).

With respect to claim 5 and with all the limitations of claim 1, Huang teaches that the shielding layer and the connecting means are made of the same material (Fig. 3).

With respect to claim 7, Huang teaches that the upper surface of the insulating resin is a rugged surface (fig. 3, note that uneven surface where element 7 begins).

With respect to claim 8 and with all the limitations of claim 1, Huang teaches that the backface of the conductive pattern is exposed (Fig. 3, Note the bottom surface of 3').

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huang in view of Tachibana (US Patent 6270607). Huang teaches all of the limitations of claim 6 except that the shielding layer and the connecting means are made of a plated film. Tachibana teaches a circuit device with a shielding device (Fig. 1(b), element 6a) and connecting means (fig. 1(b), element 4a) made of a plated film (column 4, lines 23-24). It would have been obvious to one of ordinary skill in the art at the time of the invention to form the shielding and connecting means, taught by Huang, by plated film, as taught by Tachibana, because doing so eliminates the need to have an additional step (Tachibana column 4, lines 23-28) of pasting or attaching the shield and connecting means to the resin encapsulate.

***Allowable Subject Matter***

Claim 13 contains allowable subject matter.

Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach nor make obvious that a through hole has a tapered shape which narrows toward the conductive pattern, as in the claimed combination.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ivan H. Carpio whose telephone number is 571-272-8396. The examiner can normally be reached on M-R 6:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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